

Work Order ID 138025

Tuesday, October 20, 2015 3:31:30 PM

138025

Ship out ^{257A} Page 1

Item ID: D2648-3 Accept

Revision ID:

Item Name: Wearpad

Start Date: 10/20/2015 Start Qty: 4.00 ***4***

Required Date: 10/27/2015 Req'd Qty: 4.00 ***4***

Reference:

N900040100

Rush

Cust Item ID:

Customer:

Setup Start ***NS1***

Stop ***NS2***

Approvals: Process Plan: UMF Date: 15-10-20 Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D2648	Rev D

100 0.00

100

Waterjet

FLOW CNC Waterjet

FLOW WATER JET

Memo

1-Cut as per Dwg D2648
*****CUT WITH FILE D2648-1*****

Dwg Rev: D

Prog Rev: D

2-Deburr if necessary

0.00

(4)

10/15/22

110 0.00

110

QC

Quality Control

QC2- Inspect parts off machine FAI/FAIB

Memo

0.00

(4)

10/15/22

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width: 100%; border: none;"> <tr> <td style="width: 15%;">Skid-tube</td><td style="width: 15%;">Cross tube</td><td style="width: 15%;">Water Jet</td><td style="width: 15%;">Engineering</td></tr> <tr> <td>Machining</td><td>Small Fab</td><td>Prod. Eng. Coord.</td><td>Quality</td></tr> <tr> <td>Thermoforming</td><td>Finishing</td><td>Rec/Store/Packaging</td><td>Other</td></tr> <tr> <td>Large Fab</td><td>Composite</td><td>Supplier</td><td></td></tr> </table>						Skid-tube	Cross tube	Water Jet	Engineering	Machining	Small Fab	Prod. Eng. Coord.	Quality	Thermoforming	Finishing	Rec/Store/Packaging	Other	Large Fab	Composite	Supplier																																																																																																													
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Work Order ID 138025

138025

Page 2

Tuesday, October 20, 2015 3:31:31 PM

Item ID: D2648-3

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Wearpad

Start Date: 10/20/2015 Start Qty: 4.00

4

Cust Item ID:

Required Date: 10/27/2015 Req'd Qty: 4.00

4

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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120

QC8- Inspect parts - second check

0.00

120

QC

Memo

0.00

Quality Control

DAS
38
9-89

OCT 23 2015

130

Small Fab

0.00

130

Small Fab

Memo

0.00

Small Fab

Deburr if necessary

N/A DAS
30
9-89

OCT 26 2015

140

NC BRAKE

0.00

140

Brake NC

Memo

0.00

Brake NC

1-Form as per Dwg D2648 on CNC brake using Jigs DT 8261 and DT 8326.
2-Identify as D2648-3

4
DAS
30
9-89

OCT 26 2015

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
		OTHER :							

Work Order ID 138025

138025

Page 3

Tuesday, October 20, 2015 3:31:31 PM

Item ID: D2648-3 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
 Item Name: Wearpad
 Start Date: 10/20/2015 Start Qty: 4.00 ***4*** Cust Item ID:
 Required Date: 10/27/2015 Req'd Qty: 4.00 ***4*** Customer:
 Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
150 *150* Large Fab	Weld per dwg A/R Hardcoat steel Batch <u>131416</u> Large Fab	0.00				<u>4</u>		<u>15-10-26</u>	<u>JBL</u>
	Memo	0.00							
	1-Weld as per Dwg D2648 using Jig DT 8210 2-Remove any weld that penetrated through Wearpad if necessary								
160 *160* QC	QC10- Inspect visual per QSI004- ground welds	0.00				<u>4</u>	<u>15-10-26</u>		DAS 50 9-89
Quality Control	Memo	0.00							
170 *170* QC	QC5- Inspect part completeness to step on W/O	0.00				<u>(4)</u>			DAS 38 9-89
Quality Control	Memo	0.00							

OCT 26 2015

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐				FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐							
				OTHER : ☐							

Work Order ID 138025

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Page 4

Tuesday, October 20, 2015 3:31:31 PM

Item ID: D2648-3 Accept ***N900040100*** Setup Start ***NS1***
 Revision ID: Stop ***NS2***
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 Start Date: 10/20/2015 Start Qty: 4.00 ***4*** Cust Item ID:
 Required Date: 10/27/2015 Req'd Qty: 4.00 ***4*** Customer:
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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start ***NR1***
 QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
180 *180* Powdercoat Powder Coating	Grey Sandtex(Ref:4.3.5.6) per QSI005 4.3 <i>m-130746.</i> Memo START TIME: <i>1:50</i> OVEN TEMPERATURE: <i>320°</i> FINISH TIME: <i>2:20.</i>	0.00 0.00							<i>4</i> <i>15-10-26.</i> <i>DAS 34 9-89</i>
190 *190* QC Quality Control	QC3- Inspect Part Finish Memo	0.00 0.00							<i>(4)</i> <i>DAS 38 9-89</i> <i>OCT 26 2015</i>
200 *200* Packaging Packaging	Identify as per dwg & Stock Location: _____ Memo <i>Sold</i>	0.00 0.00							<i>4</i> <i>OCT 26 2014</i> <i>DAS 6 9-89</i>

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY			
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐
Design	☐	Operator	☐	Bending	☐	Set-up	☐
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐
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Past Expiry Date	☐	Manufacturing Process	☐	OTHER : _____			
Misidentified	☐	Past Due	☐				

Work Order ID 138025***138025***

Page 5

Tuesday, October 20, 2015 3:31:31 PM

Item ID: D2648-3

Accept

N900040100Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Wearpad

Start Date: 10/20/2015 Start Qty: 4.00

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Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

210

QC21 - Final Inspection - Work Order Release

0.00

210

QC

Memo

0.01

Quality Control

MCS OCT 27 2015

20151027
SA

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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OTHER :									

Picklist Print

Tuesday, October 20, 2015 3:31:30 PM

Page 1

Work Order ID: 138025

138025

Parent Item: D2648-3

D2648-3

Parent Item Name: Wearpad

Start Date: 10/20/2015

Required Date: 10/27/2015

Start Qty: 4.00

Required Qty: 4.00

Comments: IPP: E02.09.18Re-format; Incorporated D2648-1KJ/RF
IPP Rev:F Now on Waterjet 06-08-14 JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M1010S16GA		Purchased		No		100	sf	124.9000	0.075	0.315789			
M1010S16GA									**			015/10/23	
1010/1025 sheet 16GA													

Location

Loc Qty

Loc Code

MAT019

124.9

124428

124.9

5

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

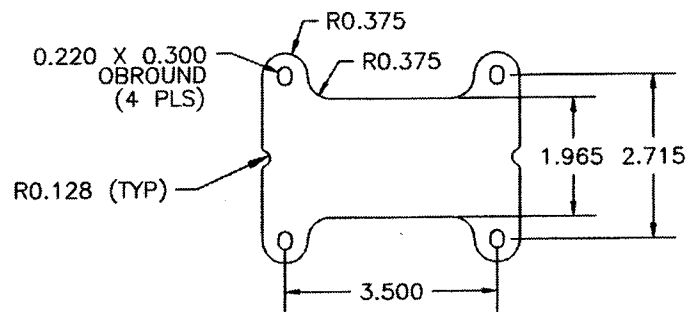
QA Closed: _____ Date: _____

Work Order update only ☐

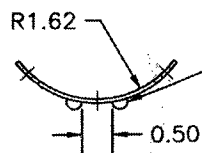
Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					

Root Cause				FAULT CATEGORY							
Environment	☐	No Re-verification	☐	Pressure/Forced	☐	Temperature/Cure	☐	Power Loss/Surge	☐	Positioned Wrong	☐
Design	☐	Operator	☐	Bending	☐	Set-up	☐	Folio/Program	☐	Outside Dimensions	☐
Doc/Data	☐	Offset/Setup	☐	Centre Not Concentric	☐	BOM/Route	☐	Grain	☐	Over/Under tolerance	☐
Equip/Tooling	☐	Supplier	☐	Cracks	☐	Broken/Damage/Defect	☐	Weld	☐	Part Incorrect	☐
Handling/Pre	☐	Training	☐	Crimp/Kink/Ripple/Wave	☐	Inspection Incomplete/Unqualified	☐	Wrong Stock Pulled	☐	Part Lost/Missing	☐
Material	☐	Use for Testing	☐	Cuffs	☐	Contamination	☐	Out of Sequence	☐	Part Moved	☐
Internal Transport	☐	Poor Information	☐	Crushing	☐	Countersink	☐	Off-set	☐	Drawing	☐
Tribal Knowledge	☐	Rushing	☐	Heat Treat	☐	Cut Too Short	☐	Mislabeled	☐	Finish	☐
LOA	☐	Product Improvement	☐	Wave/Twist in Tube	☐	Instructions Incomplete/Unclear	☐	Fit/Function	☐	Misread	☐
Substation	☐	Process Improvement	☐	Marks/Chatter	☐	Drill Holes	☐	Misaligned/off center	☐	Turning Sequence	☐
Past Expiry Date	☐	Manufacturing Process	☐	OTHER : _____							
Misidentified	☐	Past Due	☐								

D2648-1 FLAT PATTERN

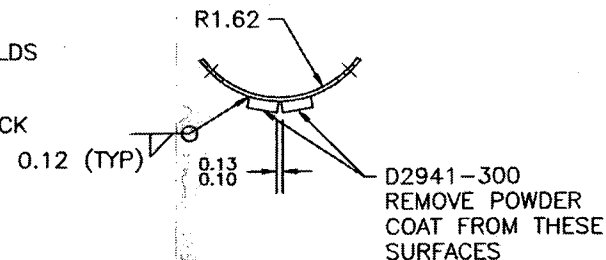


SECTION A-A

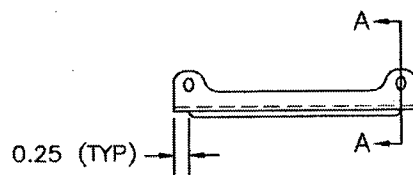


7560 HARDCOAT WELDS
TO WITHIN 0.25 OF
WEARPAD ENDS
0.063 TO 0.125 THICK

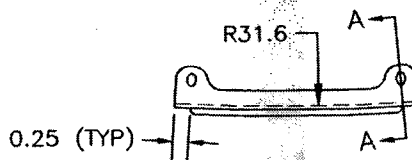
SECTION B-B



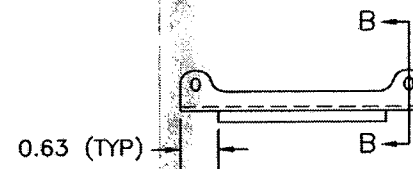
D2648-3 LONGITUDINAL BEND (MADE FROM D2648-1)



D2648-5 LONGITUDINAL BEND (MADE FROM D2648-1)



D2648-7 LONGITUDINAL BEND (MADE FROM D2648-1)



BREAK ALL SHARP CORNERS 0.063 MAX
MATERIAL: 16 GAUGE AISI 1010-1025 OR ASTM A36/A366 STEEL (0.063 THICK)
FINISH: POWDER COAT GREY (REF. 4.3.5.5) PER DART QSI 005
TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
ALL DIMENSIONS ARE IN INCHES

RELEASED
99.12.20 b5



D	99.11.17	ADDED D2648-7
C	97.06.26	R31.6 WAS R19.6
B	97.05.30	ENLARGE OBOUND, 0.375 WAS 0.250
A	97.03.25	NEW ISSUE
DESIGN	DRAWN BY	DART DART AEROSPACE USA, INC. BELLINGHAM, WA
CHECKED	APPROVED	DRAWING NO. D2648
DATE	99.11.17	TITLE WEARPAD
		REV. D SHEET 1 OF 1 SCALE 1:2

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS <table style="width:100%; border: none;"> <tr> <td style="width:15%;">Skid-tube ☐</td> <td style="width:15%;">Cross tube ☐</td> <td style="width:15%;">Water Jet ☐</td> <td style="width:15%;">Engineering ☐</td> </tr> <tr> <td>Machining ☐</td> <td>Small Fab ☐</td> <td>Prod. Eng. Coord. ☐</td> <td>Quality ☐</td> </tr> <tr> <td>Thermoforming ☐</td> <td>Finishing ☐</td> <td>Rec/Store/Packaging ☐</td> <td>Other ☐</td> </tr> <tr> <td>Large Fab ☐</td> <td>Composite ☐</td> <td>Supplier ☐</td> <td></td> </tr> </table>						Skid-tube ☐	Cross tube ☐	Water Jet ☐	Engineering ☐	Machining ☐	Small Fab ☐	Prod. Eng. Coord. ☐	Quality ☐	Thermoforming ☐	Finishing ☐	Rec/Store/Packaging ☐	Other ☐	Large Fab ☐	Composite ☐	Supplier ☐																																							
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OTHER :																																																															

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Date :		Step #:		QTY Effective :			MRB (QS1042) Approval		
Description Work Order Deviation				Disposition				Completed By	
								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐	No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐	Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐	Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐	Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐	Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐	☐ OTHER : _____			